



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/707,032	11/17/2003	Michael Nolan	03-0066_BOE0440PA	1031
27256	7590	03/21/2005	EXAMINER	
ARTZ & ARTZ, P.C. 28333 TELEGRAPH RD. SUITE 250 SOUTHFIELD, MI 48034			PHAN, THO GIA	
			ART UNIT	PAPER NUMBER
			2821	

DATE MAILED: 03/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/707,032	NOLAN ET AL.	
	Examiner	Art Unit	
	Tho G. Phan	2821	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 November 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6, 7, 9, 10, 12-19, 25, 27, 29-34, 36-39 and 41 is/are rejected.
- 7) ☒ Claim(s) 5, 8, 11, 20-24, 26, 28, 35 and 40 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>11/17/03, 2/16/04</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3, 6, 9, and 14-19 rejected under 35 U.S.C. 102(b) as being anticipated by Parker et al (6,104,358).

Parker et al in figures 1-6 disclose a plurality of elongate ribs 18 each having a proximal end and a distal end and a matching plurality of foldable resilient members 22,23,25 (column 4, lines 57-60) inter-connecting the proximal ends of the elongate ribs to the hub 12, wherein the hub comprises metal (column 4, line 63), wherein the hub is structurally adapted for being mounted on a space travel vehicle selected from the group consisting of an orbiter, a satellite, a spacecraft, a space probe, a spaceship, a space shuttle, and a space station (column 1, lines 27-33), wherein each of the foldable resilient members is substantially monolithic (solid and uniform members 23,25), wherein each of the foldable resilient members is capable of storing strain energy whenever forcibly folded and also releasing the strain energy whenever subsequently permitted to elastically unfold (abstract) and the framework further comprising a removable restraint for collectively holding the elongate ribs in a captured position wherein the foldable resilient members are forcibly folded such that the distal ends 14 of the elongate ribs 18 are thereby proximately situated together (figure 3),

Art Unit: 2821

wherein the elongate ribs are substantially parallel with each other when held in the captured position (figure 3), wherein the elongate ribs are collectively stowable in a substantially cylindrical volume when held in the captured position (figure 3), wherein the strain energy drives automatic deployment of the deployable antenna, whenever the removable restraint is removed from the elongate ribs, by forcibly unfolding the foldable resilient members in an elastic manner such that the elongate ribs are thereby splayed apart in a released position (figures 1-2, 5), and wherein the elongate ribs longitudinally radiate from the hub in a substantially circumferential manner when in the released position (figure 5).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2, 4, 7, 10, 27, 31-33, 36-38 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parker et al in view of Imbiel et al (4,498,087).

Parker et al have been discussed above but fail to teach a mesh reflector antenna, the hub/rib/foldable member comprises non-metallic fibers embedded within a resin matrix and a body. However, Imbiel et al in figures 1-4 teach a mesh reflector antenna (column 4, lines 27-29), the rib member (3 to 6) comprises non-metallic fibers embedded within a resin matrix (column 3, lines 45-47) and a body 7. It would have

Art Unit: 2821

been obvious design choice to provide a mesh reflector antenna, the hub/rib/foldable member comprises non-metallic fibers embedded within a resin matrix and a body into Imbiel et al for the purpose of providing a rather lightweight mesh reflector, yet the antenna reflector providing a substantial strength (column 3, lines 45-49) .

5. Claims 12-13 and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parker et al in view of Warren (6,321,503) [submitted by applicant].

Parker et al have been discussed above but fail to teach the hollow tube segment has a cylindrical wall including at least one elongated slot defined therethrough. However, Warren in figures 6-11 discloses the hollow tube segment 62 has a cylindrical wall including at least one elongated slot 66,67 defined therethrough. It would have been obvious design choice to provide the hollow tube segment has a cylindrical wall including at least one elongated slot defined therethrough as taught by Warren for the purpose of allowing the member to fold without adding a separate hinge which would add weight to the member which would also result in dimensional instability (column 3, lines 9-13) .

6. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parker et al in view of Thomson et al (5,680,145) [submitted by applicant].

Parker et al have been discussed above but fail to teach a mesh attachable to a net and comprising a flexible material. However, Thomson et al in figure 1 disclose a mesh attachable to a net 6,8 (column 6, lines 60 to column 7, line 18) and comprising a

Art Unit: 2821

flexible material (column 12, lines 40-42). It would have been obvious design choice to provide a mesh attachable to a net and comprising a flexible material as taught by Thomson et al for the purpose of supporting the conductive mesh so that it will have the desired shape (column 7, lines 6-8).

7. Claims 34 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parker et al modified by Imbiel et al and further in view of Thomson et al (5,680,145) [submitted by applicant].

Parker et al modified by Imbiel et al have been discussed above but fail to teach a mesh attachable to a net and comprising a flexible material. However, Thomson et al in figure 1 disclose a mesh attachable to a net 6,8 (column 6, lines 60 to column 7, line 18) and comprising a flexible material (column 12, lines 40-42). It would have been obvious design choice to provide a mesh attachable to a net and comprising a flexible material as taught by Thomson et al for the purpose of supporting the conductive mesh so that it will have the desired shape (column 7, lines 6-8).

Allowable Subject Matter

8. Claims 5, 8, 11, 20-24, 26, 28, 35 and 40 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter: The claims are allowable over the art of record because the prior art does not

Art Unit: 2821

teach wherein the non-metallic fibers comprise carbon in its allotropic form of graphite, and the resin matrix includes a type of resin selected from the group consisting of an epoxy resin, a cyanate ester resin, and a thermoplastic resin.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The patents to Webb et al and Bahiman et al are cited as of interest and illustrated a similar structure to a light weight reflector antenna assembly.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tho G. Phan whose telephone number is 571-272-1826. The examiner can normally be reached on M-F, 9:30-6:00.

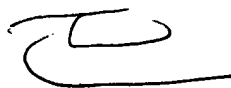
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on 571-272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tho G Phan

Application/Control Number: 10/707,032
Art Unit: 2821

Page 7

A handwritten signature in black ink, consisting of a stylized 'E' or 'C' shape with a horizontal line extending to the right.

Primary Examiner
Art Unit 2821